AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) An apparatus for generating corona discharges, comprising

a corona discharge space;

a discharge electrode disposed in the corona discharge space; as well as

a high voltage source, an output of which is connected to the discharge electrode, ~~characterized in that~~ wherein at least one element having diode functionality is connected between the high voltage source and the discharge electrode, which element delivers a DC high voltage component comprising a superposed AC high voltage component on the discharge electrode.

2. (Currently amended) An apparatus according to claim 1, ~~characterized in that~~ wherein the element having diode functionality is a semiconductor, which is configured as a rectifier, a transistor, a diode or a thryistor, for example.

3. (Currently amended) An apparatus according to claim 1 or 2, ~~characterized in that~~ wherein the element having diode functionality is configured as a single-phase rectifier.

4. (Currently amended) An apparatus according to claim 1 or 2, ~~characterized in that~~ wherein the element having diode functionality is configured as a bridge rectifier.

5. (Currently amended) An apparatus according to ~~any one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the DC high voltage is 10-60 kV~~, more in particular 5-35 kV~~.

6. (Currently amended) An apparatus according to ~~any one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the frequency of the AC high voltage is 0.1-100 kHz~~, more in particular 5-30 kHz~~.

7. (Currently amended) An apparatus according to ~~any one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the discharge electrode is an elongated body having several projecting edges or cams.

8. (Currently amended) An apparatus according to claim 7, ~~characterized in that~~ wherein said projecting edges extend on either side of said body.

9. (Currently amended) An apparatus according to ~~any one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the corona discharge space is built up of at least two parallel, electrically earthed plates, between which plates the discharge electrode extends in parallel relationship therewith.

10. (Currently amended) An apparatus according to ~~any one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the element having diode functionality is connected in series with an LR-circuit, which LR-circuit is connected to the discharge electrode.

11. (Currently amended) An apparatus according to claim 10, ~~characterized in that~~ wherein the induction value L of the LR-circuit is adjustable.

12. (Currently amended) An apparatus according to claim 10 or 11, ~~characterized in that~~ wherein said inductance value ranges between 1 nH and 1000 mH.

13. (Currently amended) An apparatus according to ~~any one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the high voltage source is an AC/DC pulse converter.

14. (Currently amended) An apparatus according to ~~any one or more of the preceding claims~~, claim 1, ~~characterized in that~~ wherein the high voltage source is an AC/DC/AC converter.

15. (Currently amended) A discharge electrode for use in an apparatus according to ~~any one or more of the preceding claims~~ claim 1 and as defined in claim 7 or 8.

16. (New) An apparatus according to claim 5, wherein the DC high voltage is 5-35 kV.

17. (New) An apparatus according to claim 6, wherein the frequency of the AC high voltage is 5-30 kHz.